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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,659	11/23/2005	Michael John Clarke	D-3212	9880

Frank J Uxa
Stout Uxa Buyan & Mullins
Suite 300
4 Venture
Irvine, CA 92618

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EXAMINER

GREENE, JASON M

ART UNIT	PAPER NUMBER
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1797

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/536,659	Applicant(s) CLARKE ET AL.	
	Examiner Jason M. Greene	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 10-18, 22-26 and 35-39 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 36 is/are allowed.
- 6) ☒ Claim(s) 1-6, 10-18, 22-26, 35, 37 and 39 is/are rejected.
- 7) ☒ Claim(s) 22 and 38 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/27/05</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Objections

1. Claim 22 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 22 fails to further limit the subject matter of a previous claim since it depends from cancelled claim 21. For examination purposes, it has been assumed that claim 22 was intended to be dependent from claim 16. If this assumption is correct, the Examiner suggests Applicants amend the claim accordingly, including providing antecedent basis for the phrase "the polymer" bridging lines 1-2.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 6, 10, 12-14 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Steinwandel et al. (US 5,876,486).

Steinwandel et al. discloses an apparatus capable of separating CO₂ from a gas stream containing CO₂ and an anesthetic gas comprising a gas separation device and means (the blower) for transporting the gas stream at a periodically varying flow rate (by cycling or adjusting the speed of the blower) through the gas separation device, the gas separation device comprising a supported carrier liquid membrane in which the carrier species is an organic base (diethanolamine or monoethanolamine) present at a concentration sufficient to provide a separation factor α of at least 1, and at least 60 for less permeable anesthetic gases, wherein the membrane support is a porous polymer, wherein the membrane is in the form of a bundle of hollow fiber membranes, wherein the apparatus comprises means for generating a sweep gas stream (see Figs. 4 and 5), and wherein the apparatus comprises a plurality of supported carrier liquid membranes comprising the carrier species, means for transporting a sweep gas past the second membrane, a mass of carrier liquid contacting all the membranes, and means (pump 2') for circulating the carrier liquid past the membranes in Figs. 2-5 and col. 5, line 8 to col. 6, line 58.

With regard to the apparatus being for separating CO₂ from a gas stream containing CO₂ and an anesthetic gas, intended use has been continuously held not to be germane to determining the patentability of the apparatus, In re Finsterwalder, 168 USPQ 530 (CCPA 1971). Purpose to which apparatus is to be put and expression relating apparatus to contents thereof during intended operation are not significant in

determining patentability of an apparatus claim, Ex parte Thibault, 164 USPQ 666 (PTO Board of Appeals 1969). Inclusion of the material worked upon by a structure being claimed does not impart patentability to the claims, In re Otto et al., 136 USPQ 458 (CCPA 1963). A recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the structural limitations of that claimed, Ex parte Masham, 2 USPQ 2d 1647 (PTO Board of Appeals 1987).

4. Claims 16-18 and 22-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Jansen et al. (US 5,749,941).

Jansen et al. discloses a device for separating gases which comprises a supported carrier liquid membrane in which the carrier is an organic base (diethanolamine or monoethanolamine) present in a concentration of 5 mol/L (5 mol/dm³) (see col. 7, lines 56-67), wherein the support is a polysulfone polymer (see col. 5, lines 62-66), wherein the membrane is in the form of a hollow fiber bundle or a flat sheet (see col. 6, lines 4-29) in col. 5, line 62 to col. 8, line 20.

With regard to claim 26, the device of Jansen et al. is capable of separating CO₂ from a gas stream containing CO₂ and an anesthetic gas. Intended use has been continuously held not to be germane to determining the patentability of the apparatus, In re Finsterwalder, 168 USPQ 530 (CCPA 1971). Purpose to which apparatus is to be put and expression relating apparatus to contents thereof during intended operation are not significant in determining patentability of an apparatus claim, Ex parte Thibault, 164

Art Unit: 1797

USPQ 666 (PTO Board of Appeals 1969). Inclusion of the material worked upon by a structure being claimed does not impart patentability to the claims, *In re Otto et al.*, 136 USPQ 458 (CCPA 1963). A recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the structural limitations of that claimed, *Ex parte Masham*, 2 USPQ 2d 1647 (PTO Board of Appeals 1987).

5. Claim 37 is rejected under 35 U.S.C. 102(b) as being anticipated by Jansen et al. (US 5,749,941).

Jansen et al. discloses a method for separating gases in a gas stream which comprises contacting the gas stream with a supported carrier liquid membrane in which the carrier is an organic base present in a concentration of 5 mol/L (5 mol/dm³) in col. 5, line 62 to col. 8, line 20.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4, 5 and 11 rejected under 35 U.S.C. 103(a) as being unpatentable over Steinwandel et al. (US 5,876,486) in view of Jansen et al. (US 5,749,941).

With regard to claims 4 and 5, Steinwandel et al. teaches the carrier being present in a concentration of 2 mol/L, but does not teach a concentration of 4.5 mol/L to 6 mol/L. Jansen et al. discloses a similar apparatus wherein the carrier is present in a concentration of 5 mol/L in col. 5, line 62 to col. 8, line 20.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the higher carrier concentration of Jansen et al. into the apparatus of Steinwandel et al. to increase the capacity of the carrier for transporting the gas, as is well known in the art.

With regard to claim 11, Steinwandel et al. does not teach the polymer being polysulfone or polyacrylonitrile, but Jansen et al. teaches using polysulfone in col. 5, lines 62-66.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the polysulfone of Jansen et al. into the apparatus of Steinwandel et al. in that such is an alternate polymer in the art for forming the support.

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Steinwandel et al. (US 5,876,486) in view of Sirkar et al. (US 6,635,103 B2).

Steinwandel et al. does not disclose the apparatus comprising means for humidifying the sweep gas stream, but Sirkar et al. '103 teaches a similar apparatus comprising means for humidifying the sweep gas stream in Fig. 1 and col. 2, lines 21-42.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the sweep gas humidifying means of Sirkar et al. '103 into the apparatus of Steinwandel et al. to minimize loss of solvent due to evaporation, as suggested by Sirkar et al. '103 in col. 2, lines 21-42.

9. Claims 37 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steinwandel et al. (US 5,876,486) in view of Jansen et al. (US 5,749,941).

Steinwandel et al. discloses a method for separating gases in a gas stream comprising contacting the gas stream with a supported carrier liquid membrane, wherein the gas stream is transported at a periodically varying flow rate (by cycling or adjusting the speed of the blower) over the supported carrier liquid membrane in Figs. 2-5 and col. 5, line 8 to col. 6, line 58.

Steinwandel et al. teaches the carrier being present in a concentration of 2 mol/L, but does not teach a concentration of at least 4.5 mol/L. Jansen et al. discloses a similar method wherein the carrier is present in a concentration of 5 mol/L in col. 5, line 62 to col. 8, line 20.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the higher carrier concentration of Jansen et al. into

Art Unit: 1797

the method of Steinwandel et al. to increase the capacity of the carrier for transporting the gas, as is well known in the art.

Allowable Subject Matter

10. Claim 36 is allowed.

11. Claim 38 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter:

With regard to claim 36, the prior art made of record does not teach or fairly suggest a method for separating CO₂ from a gas stream containing CO₂ and an anesthetic gas comprising transporting the gas stream at a periodically varying flow rate through a gas separation device, the gas separation device comprising a supported carrier liquid membrane in which the carrier gas species in an organic base present at a concentration sufficient to provide a separation factor α of least unity.

With regard to claim 38, the prior art made of record does not teach or fairly suggest the method of claim 37 wherein the gas stream comprises carbon dioxide and anesthetic gas.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Riecke, Sirkar '918, Sirkar '096, Birbara, Nakabayashi et al., Westerkamp et al. and Holder references disclose similar systems.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Greene whose telephone number is (571) 272-1157. The examiner can normally be reached on Monday - Friday (9:00 AM to 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1797

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jason M. Greene
Primary Examiner
Art Unit 1797

/Jason M. Greene/
5/23/08

jmg
May 23, 2008